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### **REMARKS**

This is intended as a full and complete response to the Office Action dated July 15, 2005 having a shortened statutory period for response set to expire on October 15, 2005. In the Office Action, the Examiner noted that claims 1 to 33 are pending in the application. By this Response, all claims continue unamended and arguments refuting the Examiner's positions are provided. Applicants gratefully acknowledge the allowability of Claims 4-5, 12 and 31-33 if such claims were written in independent form. However, in view of the following discussion, the Applicants submit that none of the claims now pending in the application are anticipated or obvious under the respective provisions of 35 U.S.C. §102 and §103. The Applicants request that the Examiner enter this Response and reconsider the application.

### **REJECTIONS**

#### **Rejection of claims under 35 U.S.C. § 102**

The Examiner has rejected claims 1, 2, 27, 28 and 32 under 35 U.S.C. §102(b) as being anticipated by any of U.S. Patent Nos. 5,995,681 issued November 30, 1999 to Lee; 5,251,271 issued October 5, 1993 to Fling or 6,759,979 issued July 6, 2004 to Vashisth et al. (hereinafter "Lee", "Fling" and "Vashisth" respectively). The Applicants respectfully traverse the Examiner's rejection. Specifically, the Applicants respectfully offer that the Examiner has not properly identified each of the claimed elements as arranged in the independent claims so as to establish the *prima facie* case of anticipation. "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing Connell v. Sears, Roebuck & Co., 722 F.2d

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1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). Each of Lee, Fling and Vashisth fail to disclose each and every element of the claimed invention, as arranged in the claim.

Specifically, The Examiner indicated that all of the above cited references teach a method of registering ladar data according to the respective Abstracts of the cited references. However, upon closer inspection, each of the references contains a deficiency in its teachings that negates any conclusion of anticipation. Lee discloses aligning a single captured frame to a reference frame rather than receiving a plurality of frames and registering at least 2 such frames to determine a sensor pose with respect to a reference as claimed. For example, at the Summary of Lee at Col. 2, lines 41-59, there is a discussion of co-registration of a single "working" digital image with a more accurate reference digital image. At Col 4, lines 50-60, such working (or first input) image is subjected to a co-registration process against a second reference image from a library of images. Nowhere in the reference are at least two of a plurality of such "working" images registered to determine a sensor pose with respect to a reference as recited directly in Claims 1 and 27 and in means plus function format in Claim 28. That is, the reference takes each "working" image singly for registration to an already known reference and nothing more.

Vashisth discloses a registration apparatus and process that utilizes data from two different locations rather than receiving a plurality of ladar frames and registering at least two of said plurality of ladar frames frames for determining a sensor pose with respect to a reference. That is, Vashisth teaches in many instances (e.g., col 2, lines 25-47, col 9, lines 25-32 and col. 10, lines 10- 25) that image registration is achieved by alignment of scanned information from two different locations, but nothing more. There is no teaching or disclosure of a separate reference with respect to the image capture data from such two locations as claimed.

Lastly, Fling discloses improvements to photography techniques by aligning different color plates that comprise a photograph rather than disclosing LADAR

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principles, techniques and data management. See for example Col. 1, lines 56-63 that discusses the problem of accurately registering separate color films and Col. 4, lines 4-8 and lines 54-62 that disclose registration of separate color "planes" of a single image and not a plurality of ladar frames. Each of the independent claims specifically recite the handling of LADAR data and frames and is in no way concerned with improvements in the field of photography.

Accordingly, it is respectfully submitted that each of the cited references does not teach or disclose all of the elements of Claims 1, 27 and 28 as arranged in these claims; thus, the cited references do not anticipate the subject invention as claimed. Therefore, the Applicants submit that independent claims 1, 27 and 28 are not anticipated and fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder. Furthermore, claims 2 and 32 depend directly from independent claims 1 and 28 respectively and recite additional limitations thereof. As such and at least for the same reasons as discussed above, the Applicants submit that the dependent claims are also not anticipated and fully satisfy the requirements of 35 U.S.C. §102 and are patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

### **Rejection of Claims under 35 U.S.C. § 103**

#### **1. Claim 2**

The Examiner has rejected claim 2 under 35 U.S.C. §103 as being unpatentable over any of Lee or Fling in view of Vashisth. The Applicants respectfully traverse the Examiner's rejection.

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy,

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110 USPQ 1021, 1024 (Fed. Cir. 1984) (emphasis added). Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. In re Wright, 6 USPQ 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added).

None of Lee, Fling or Vashisth either alone or in combination teach or suggest the Applicants' invention as a whole. That is, each of the cited references has been discussed above and shown to have deficiencies in their teachings with respect to the broader independent Claim 1. The inclusion of the alleged GPS in a registering step of Vashisth as offered by the Examiner still does not bridge the gap in the teachings so as to render Applicants' invention (as a whole) obvious. Note also that the Examiner's motivation to combine (at least with respect to Fling) is not very practical or believable as it was indicated above by the Applicants that Fling pertains to improvements in color photography development that has no specific bearing or reliance on GPS as physical location is not relevant to that art.

Accordingly, the combination of Lee or Fling with Vashisth does not teach, disclose or suggest the invention of dependent Claim 2; thus, the combination does not obviate the subject invention as claimed. As such, the Applicants submit that claim 2 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

## 2. Claims 3, 15-16 and 29

The Examiner has rejected claims 3, 15-16 and 29 under 35 U.S.C. §103 as being unpatentable over any of Lee or Fling or Vashisth in view of U.S. Patent No. 6,078,701 issued to Hsu et al. (hereinafter "Hsu"). The Applicants respectfully traverse the Examiner's rejection.

None of Lee, Fling or Vashisth either alone or in combination teach or suggest the Applicants' invention as a whole. That is, each of the cited references has been

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discussed above and shown to have deficiencies in their teachings with respect to the broader independent Claims 1 and 28. The inclusion of the alleged course searching and fine registration and/or pairwise registration of Hsu as offered by the Examiner still does not bridge the gap in the teachings so as to render Applicants' invention (as a whole) obvious. Note also that the Examiner's motivation to combine (at least with respect to Fling) is not very practical or believable as it was indicated above by the Applicants that Fling pertains to improvements in color photography development that has no specific bearing or reliance on translation or differences in temporal distances as such aspects are not relevant to that art.

Accordingly, the combination of Lee or Fling or Vashisth with Hsu does not teach, disclose or suggest the invention of dependent Claims 3, 15-16 and 29; thus, the combination does not obviate the subject invention as claimed. As such, the Applicants submit that these dependent claims are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and is patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

### 3. Claims 6-11 and 13

The Examiner has rejected claims 6-11 and 13 under 35 U.S.C. §103 as being unpatentable over any of Lee or Fling or Vashisth in view of Hsu as applied to Claim 3 above and in further view of U.S. Patent No. 5,999,662 issued to Burt et al (hereinafter "Burt"). The Applicants respectfully traverse the Examiner's rejection.

None of Lee, Fling, Vashisth or Hsu either alone or in combination teach or suggest the Applicants' invention as a whole. That is, each of the cited references has been discussed above and shown to have deficiencies in their teachings with respect to the broader independent Claim 1 and dependent Claim 3. The inclusion of the alleged fine registration and/or point cloud methodology of Burt as offered by the Examiner still does not bridge the gap in the teachings so as to render Applicants' invention (as a

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whole) obvious. Additionally, Applicants' position with respect to Fling remains as it is outside the scope of the art of processing ladar data.

Accordingly, the combination of Lee or Fling or Vashisth with Hsu and Burt does not teach, disclose or suggest the invention of dependent Claims 6-11 and 13; thus, the combination does not obviate the subject invention as claimed. As such, the Applicants submit that these dependent claims are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

#### 4. Claim 14

The Examiner has rejected claim 14 under 35 U.S.C. §103 as being unpatentable over any of Lee or Fling or Vashisth in view of Burt. The Applicants respectfully traverse the Examiner's rejection.

None of Lee, Fling, or Vashisth either alone or in combination teach or suggest the Applicants' invention as a whole. That is, each of the cited references has been discussed above and shown to have deficiencies in their teachings with respect to the broader independent Claim 1. The inclusion of the alleged hierarchical approach to a sensor pose of Burt as offered by the Examiner still does not bridge the gap in the teachings so as to render Applicants' invention (as a whole) obvious. Additionally, Applicants' position with respect to Fling remains as it is outside the scope of the art of processing ladar data.

Accordingly, the combination of Lee or Fling or Vashisth with Burt does not teach, disclose or suggest the invention of dependent Claim 14; thus, the combination does not obviate the subject invention as claimed. As such, the Applicants submit that this dependent claim is not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

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## 5. Claims 17-18

The Examiner has rejected claims 17-18 under 35 U.S.C. §103 as being unpatentable over any of Lee or Fling or Vashisth. The Applicants respectfully traverse the Examiner's rejection.

None of Lee, Fling, or Vashisth either alone or in combination teach or suggest the Applicants' invention as a whole. That is, each of the cited references has been discussed above and shown to have deficiencies in their teachings with respect to the broader independent Claim 1. The inclusion of the alleged noise cleaning steps as offered by the Examiner still does not bridge the gap in the teachings so as to render Applicants' invention (as a whole) obvious. Additionally, Applicants' position with respect to Fling remains as it is outside the scope of the art of processing ladar data.

Accordingly, the combination of Lee or Fling or Vashisth does not teach, disclose or suggest the invention of dependent Claims 17-18; thus, the combination does not obviate the subject invention as claimed. As such, the Applicants submit that these dependent claims are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicants respectfully request that the Examiner's rejection be withdrawn.

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**CONCLUSION**

If the Examiner believes that there are any unresolved issues, it is requested that the Examiner telephone Mr. Raymond R. Moser, Jr., Esq. at (732) 935-7100 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

11-1-05  
Date

  
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